

In the claims:

(Currently Amended) 1. A method of producing constructed fares that includes an arbitrary added to a published fare, said method executed in a computer system, the method comprising:

determining interior cities that appear with gateway cities in arbitraries for the airline, the arbitraries being published amounts that extending published fares and which cannot be used alone to produce a fare, ~~in order to derive prices to minor cities~~;

searching a database having published fares for gateway cities corresponding to the determined interior cities appearing in the arbitraries; and

applying an arbitrary corresponding to one of the interior cities to a published fare involving one of the gateway cities determined interior cities appearing in the arbitraries to produce the constructed fare.

(Previously Amended) 2. The method of claim 1 wherein determining interior cities comprises:

accessing a hash table indexed by an airline, interior-city pair to return a list of gateway cities for which an airline has arbitraries that specify the interior city.

3. The method of claim 2 wherein accessing a hash table returns the list in constant time.

(Previously Amended) 4. The method of claim 1 wherein searching for gateway cities comprises:

accessing a hash table indexed by an airline, gateway pair to return a list of gateway cities that an airline publishes fares from the determined gateway to another gateway city.

(Previously Amended) 5. The method of claim 1 wherein determining interior cities comprises:

accessing a first hash table indexed by an airline, interior-city pair to return a list of gateway cities for which an airline has arbitraries that specify the interior city; and wherein searching for gateway cities further comprises:

accessing a second hash table indexed by an airline, gateway pair to return a second list of gateway cities that an airline publishes fares from the determined gateway to another gateway city.

6. The method of claim 5 wherein accessing the first and second hash table returns the lists in constant time.

7. The method of claim 1 wherein applying arbitraries further comprises:
evaluating records from fare construction tables to determine whether the constructed fare is a valid constructed fare.

8. The method of claim 1 wherein the method is conditioned to allow any one or more of an airline code, interior city a first gateway city a second gateway city, or fare-basis to vary.

9. The method of claim 7 wherein testing entries further comprises:
determining if an entry in a construction table was memoized before accessing the construction table; and
if the entry was memoized, retrieving an answer from a store of memoized entries to apply to the constructed fare.

10. The method of claim 1 wherein the constructed fare is a two component constructed fare.

(Previously Amended) 11. The method of claim 1, further comprising:
determining a second set of interior cities that appear with a second gateway city in the published fare for the airline;

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applying an arbitrary that extends the published fare to a city from the second set of interior cities to produce a three component constructed fare.

12. The method of claim 1 wherein the method is performed over all determined interior cities and all gateways.

13. The method of claim 1 wherein the method is performed over all airlines.

(Currently Amended) 14. A method of producing a set of constructed international fares for a particular airline, the method executed in a computer system and the method comprising:

determining interior cities that appear with gateway cities in arbitraries for the particular airline, arbitraries being published amounts that extend published fares and which cannot be used alone to produce a fare;

searching for gateway cities corresponding to the determined interior cities appearing in the arbitraries; and

applying arbitraries corresponding to the determined interior cities to published fares involving the gateway cities to produce the set of constructed fares for the airline.

15. The method of claim 14 wherein the set of constructed fares are two component constructed fares.

16. The method of claim 14 further comprising:
determining a second set of interior cities that appear with second gateway cities in the published fares.

17. The method of claim 15 wherein the set of constructed fares is a first set of constructed fares and the method further comprises:

applying each arbitrary corresponding to each of the determined second set of interior cities to the first set of constructed fares to produce a second set of constructed fares.

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18. The method of claim 14 wherein the first set of constructed fares are two component constructed fares and the second set of constructed fares are three component constructed fares.

19. The method of claim 14 further comprising:
evaluating entries in fare construction tables to determine whether constructed fares in the set of constructed fares are valid constructed fares; and
returning the valid constructed fares as the set of constructed fares.

20. The method of claim 19 wherein evaluating entries further comprises:
determining if an entry in a fare construction table was memoized before accessing the fare construction table; and
if the entry was memoized, retrieving an answer from a store of memoized entries to apply to the constructed fare.

21. The method of claim 14 wherein determining interior cities comprises:
accessing a first hash table by an airline, interior-city pair to return a list of gateway cities for which an airline has arbitraries that specify the interior city; and
wherein searching for gateway cities comprises:
accessing a second hash table by an airline, gateway pair to return a second list of gateway cities that an airline publishes fares from the determined gateway to another gateway city.

22. A computer program product residing on a computer readable medium, for producing constructed fares that includes an arbitrary added to a published fare, comprising instructions for causing a computer system to:

determine interior cities that appear with gateway cities in arbitraries for the airline,
arbitraries being published amounts that extend published fares and which cannot be used alone to produce a fare;

search for gateway cities corresponding to the determined interior cities appearing in the arbitraries; and

apply an arbitrary corresponding to one of the interior cities to a published fare involving one of the gateway cities to produce the constructed fare.

23. The computer program product of claim 22 wherein instructions that cause a computer to determine interior cities comprises

accessing a hash table by an airline, interior-city pair to return a list of gateway cities for which an airline has arbitraries that specify the interior city.

24. The computer program product of claim 23 wherein instructions that cause a computer to access a hash table returns the list in constant time.

25. The computer program product of claim 22 wherein instructions that cause a computer to search for gateway cities comprises instructions that cause a computer to:

access a hash table by an airline, gateway pair to return a list of gateway cities that an airline publishes fares from the determined gateway to another gateway city.

26. The computer program product of claim 22 wherein instructions that cause a computer to determine interior cities comprises instructions that cause a computer to:

access a first hash table by an airline, interior-city pair to return a list of gateway cities for which an airline has arbitraries that specify the interior city; and

wherein instructions that cause a computer to search for gateway cities comprises instructions that cause a computer to:

access a second hash table by an airline, gateway pair to return a second list of gateway cities that an airline publishes fares from the determined gateway to another gateway city.

27. The computer program product of claim 26 wherein instructions that cause a computer to access the first and second hash table returns the lists in constant time.

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28. The computer program product of claim 22 wherein instructions that cause a computer to apply arbitraries further comprises instructions that cause a computer to:

test entries in construction tables to determine whether the constructed fare is a valid constructed fare.

29. The computer program product of claim 28 wherein instructions that cause a computer to test entries further comprises instructions that cause a computer to:

determine if an entry in a construction table was memoized before accessing the construction table; and

if the entry was memoized, retrieve an answer from a store of memoized entries to apply to the constructed fare.

30. The computer program product of claim 22 wherein the constructed fare is a two component constructed fare.

31. The computer program product of claim 22 wherein the computer program product is conditioned to allow any one or more of an airline code, interior city, a first gateway city, a second gateway city, or fare-basis to vary.

32. The computer program product of claim 22, further comprising instructions that cause a computer to:

determine a second set of interior cities that appear with a second gateway city in the published fare for the airline; and

apply a second interior city from the second set of interior cities to the constructed fare to produce a three component constructed fare.

33. The computer program product of claim 22 wherein the computer program product is executed over all determined interior cities and all gateways.

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34. The computer program product of claim 22 wherein the computer program product is executed over all airlines.

35. A computer program product for producing a set of constructed international fares for an airline, the computer program product residing on a computer readable medium and comprising instructions that cause a computer to:

determine interior cities that appear with gateway cities in arbitraries for the airline, arbitraries being published amounts that extend published fares and which cannot be used alone to produce a fare;

search for gateway cities corresponding to the determined interior cities appearing in the arbitraries; and

apply each arbitrary corresponding to each of the determined interior cities to published fares involving the gateway cities to produce the set of constructed fares.

36. The computer program product of claim 35 wherein the set of constructed fares are two component constructed fares.

37. The computer program product of claim 35 further comprising instructions that cause a computer to:

determine a second set of interior cities that appear with second gateway cities in the published fares.

38. The computer program product of claim 36 wherein the set of constructed fares is a first set of constructed fares, and the computer program product further comprises instructions that cause a computer to:

apply each arbitrary corresponding to each of the determined second set of interior cities to the first set of constructed fares to produce a second set of constructed fares.

39. The computer program product of claim 35 wherein the first set of constructed fares are two component constructed fares and the second set of constructed fares are three component constructed fares.

40. The computer program product of claim 35 further comprising instructions that cause a computer to:

evaluate entries in fare construction tables to determine whether constructed fares in the set of constructed fares are valid constructed fares; and

return the valid constructed fares as the set of constructed fares.

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41. The computer program product of claim 40 wherein instructions that cause a computer to evaluate entries further comprises instructions that cause a computer to:

determine if an entry in a fare construction table was memoized before accessing the fare construction table; and

if the entry was memoized, retrieve an answer from a store of memoized entries to apply to the constructed fare.

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42. The computer program product of claim 35 wherein instructions that cause a computer to determine interior cities comprises instructions that cause a computer to:

access a first hash table by an airline, interior-city pair to return a list of gateway cities for which an airline has arbitraries that specify the interior city; and

wherein instructions that cause a computer to search for gateway cities comprises instructions that cause a computer to:

access a second hash table by an airline, gateway pair to return a second list of gateway cities that an airline publishes fares from the determined gateway to another gateway city.

43. A computer system comprising:

a processor;

a memory for storing instructions executed by the processor; and

a storage medium storing a computer program product for producing a set of constructed international fares for an airline, the computer program product comprising instructions that cause the processor to:

determine interior cities that appear with gateway cities in arbitraries for the airline, arbitraries being published amounts that extend published fares and which cannot be used alone to produce a fare;

search for gateway cities corresponding to the determined interior cities appearing in the arbitraries; and

apply each arbitrary corresponding to each of the determined interior cities to published fares involving the gateway cities to produce the set of constructed fares.

44. The computer system of claim 43 wherein the system is a stand-alone computer.

45. The computer system of claim 43 wherein the system is a server computer in a networked, client-server computer system.

46. The computer system of claim 43 wherein the system is a client computer in a networked, client-server computer system.

Claims 47- 51 were canceled.

52. A method of producing a set of constructed international fares for an airline, the method executed in a computer system and the method comprising:

accessing a first hash table by airline interior city pair to return a list of gateway cities for which an airline has arbitraries that specify the interior city, with arbitraries being published amounts that extend published fares to the gateway city from interior cities and which cannot be used alone to produce a fare;

accessing a second hash table by airline gateway pair to return a second list of gateway cities that an airline publishes fares from to determine a gateway to another gateway city;

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applying the first arbitraries from the first hash table to the published fares from the second hash table to return a list of potential constructed fares; and

determining whether a constructed fare in a list of constructed fares is a valid constructed fare and for valid ones of the potential constructed fares producing the constructed fares.

53. The method of claim 52 wherein the constructed fares are two component constructed fares.

54. The method of claim 52 further comprising:
determining a second set of interior cities that appear as arbitraries with the second gateway cities by accessing a third hash table by airline interior city pair to return a list of gateway cities for which an airline has arbitraries that specify the interior city; and

applying the arbitraries corresponding to the determined second set of interior cities to the first set of constructed fares to produce a second set of constructed fares.

55. The method of claim 54 wherein the first set of constructed fares are two component constructed fares and the second set of constructed fares are three component constructed fares.

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